Report Summary

Introduction

This performance audit was done at the request of the Legislative Audit Committee. The report provides information on DNRC's role in wildland fire suppression. It addresses questions about fire costs, communication/coordination with federal and local fire protection agencies, and availability of resources for wildland fire preparedness and suppression.

We used the 2003 fire season as the basis for the bulk of examination/analysis of wildland fire administration because of the few significant fires in 2004. Our examination consisted of interviews, policy/procedure reviews, and examination of the documentation associated with a judgmental sample of fires. Additionally, we observed current fire suppression and overall administration efforts of state, county, and federal fire protection agencies by going to three separate fires that occurred during 2004.

Background

While there are different types of fires based on size and complexity, for purposes of understanding the level of administration needed for those fires, there are really only two kinds of fires: initial attack fires and extended attack fires. The distinction between them is the length of time to extinguish. Initial attack fires are typically contained or controlled within 1-2 operational periods, with 24 hours being a typical operational period. Extended attack fires are incidents that could not be contained or controlled by initial attack forces and need more firefighting resources. Extended attack fires can range from two days to several months depending upon location, topography, and forest fuels.

Fire Protection Agencies are Initial Attack-Oriented in Terms of Resources

Montana's fire protection agencies (state, federal, and local) are initial attack-oriented firefighting forces. Their primary objective is to aggressively respond to reports of fire in an attempt to keep the fires as small as possible. To do this, these agencies often rely upon one another to assist/support their initial attack efforts. This reliance and interdependence has been forged through mutual aid and various other types of agreements. The administration of initial attack fires is typically conducted by the fire protection agency responsible for protecting that land. An incident commander working for that entity

is orders the necessary resources and determines how those resources (personnel and equipment) are used to suppress the fire.

If a fire becomes or is designated an extended attack fire, a substantively different administrative approach generally comes into play. Because these fires are already large and/or complex or rapidly getting to that point, the administrative entity or entities protecting the land recognize their initial attack resources are no longer sufficient to fight the fire and even if they were to do so, they would be unavailable to respond to other initial attack fires. As a result, it becomes necessary to bring in what are called, "Incident Management Teams (IMTs)"to manage and ultimately suppress the fires. At present, only one administering entity in Montana (DNRC) has what can be described as its own IMT, the County Assistance Team. However, its role and involvement has been limited to specific types of fires in Eastern Montana.

IMTs are Used to Manage Project Fires

Instead of each agency having its own IMTs, there has been a coalition of agency resources developed. By agreement and necessity, selected local, state, and federal personnel from their respective agencies have been recruited and trained over the years to participate on IMTs. These interagency IMTs are requested to manage extended attack or what are more commonly called, "project fires". Numerous coordination/oversight organizations have been created to regulate firefighting methods and business practices to help standardize training standards, and fire administration differences between the protection agencies. This coalition of resources has not only been necessary to help ensure firefighter and public safety, but to address the growing costs of fighting wildland fires. The National Wildfire Coordinating Group (NWCG) is comprised of federal agency representatives and the Association of State Foresters (of which Montana is a member). The group's purpose is to facilitate coordination and effectiveness of wildland fire activities and provide a forum to solve problems of a substantive nature. The NWCG is the certifying body for wildland fire training courses and is responsible for standardizing fire business practices.

Regional coordinating groups have also been created to more specifically address firefighting in similar geographic areas. The Northern Rockies Coordinating Group (NRCG) provides oversight and recommendations for all interagency wildland fire management activities in the Northern Rockies geographic area. The group itself is composed of federal wildland agencies, DNRC, Montana Disaster and Emergency Services Division, Idaho Department of State Lands, North Dakota Forest Service, Montana Firewarden's Association, Montana Fire Chief's Association, and Montana Sheriff's and Peace Officer's Association. The designated Northern Rockies geographic area is comprised of Montana, North Dakota, northern Idaho, and a small portion of South Dakota and Wyoming. The NRCG provides more specific fire administration guidance through established operational requirements, protocols for mobilization of resources, and specific business practices, such as standardized payment rates for heavy equipment and fire engine rentals. While each of the NRCG partners has some flexibility and outlined differences in their practices with regard to fires within their respective jurisdiction, the NWCG and NRCG guidelines essentially dictate fire management practices for joint jurisdiction project fires in the Northern Rockies geographic area.

General Observation: Wildland fires are expensive and mother nature impacts experience-based management decisions.

Based on our audit work, it is readily apparent combating wildland fires is inherently expensive. Based on data reviewed, we found the 10-year average cost of suppressing fires of 10 acres or less was approximately $4,500 per fire. In comparison, suppression costs for fires of 5,000 acres or larger averaged $2.3 million per fire. Aviation resources, heavy equipment, and crews are required to directly or indirectly attack wildland fires. Equally important factors in costs are topography, weather, and forest fuels. The strategies created and resources deployed are experience-based calls by the administering entities and Incident Management Teams. As with most human decision-making, post-fire reviews show there are instances when different judgments could have been made, established procedures/policies were overlooked, and inefficiencies occurred.

During the last four years, numerous studies have been conducted with regard to wildland fire administration and more specifically of

wildland fire suppression costs. Five common themes are central to these studies:

- The most effective cost containment strategy is to prevent fires from escaping initial attack.
- There is a critical need to reduce fuel levels in wildland areas so fires are less likely to overwhelm initial attack capabilities.
- Movement into the wildland urban interface has increased fire suppression costs.
- Nationally, there needs to be greater integration of local firefighting resources in the overall wildland firefighting strategies.
- If the climate prognosis is correct, the prevailing climatic conditions (drought) may well exist for the next 20-30 years. The catastrophic fires that have occurred in the past five years provide a sobering insight into what the future may hold.

Montana's 2003 Fire Season Should be Placed in Perspective

The significance of the fire danger and level of suppression activity during a fire season is important to understanding the actions of DNRC and its fire partners. Decision-making, policies and procedures, as well as existing business practices were all impacted and tested by the severity of the 2003 fire season. It is also important to recognize the administration of Montana fires was impacted by fires in other parts of the United States due to the lack of readily available qualified personnel and equipment resources. The following are paraphrased excerpts from an NRCG-commissioned study of fires in the Northern Rockies that offer the reader some perspective regarding the fires of 2003.

- Large fires were prevalent in the Northern Rockies. There were substantially more large fires here than any other region of the western United States and they burned more acres than any other area except Southern California.
- The Northern Rockies fires were widespread, with several in Idaho, Eastern Montana, and North Dakota. Northwestern Montana had several large fires early in the fire season, threatening towns. Southwestern Montana had large fires threatening subdivisions near Missoula, Florence, Lolo Creek, etc. Central and South Central Montana had at least 10 large fires.

- Fire Season began early with large fires starting by July 13. On July 25-26, a series of lightning storms produced more than 6000 down strikes in North and Central Idaho and Southwest Montana. This storm ignited dozens of fires, and by the end of July the region had 12 major fires burning. On August 10, 400 new wildfires (nationally) were reported, including two new large fires in the Northern Rockies. Over the next two days, another 671 new fires were reported nationally, adding nine new large fires. By August 15, there were (or had been) 52 project fires in the Northern Rockies.
- At the peak of fire activity there were 34 Incident Management Teams managing fires in the Northern Rockies and overall, during the 2003 fire season there were 89 IMT assignments.
- Fire costs for the Northern Rockies likely exceeded $325 million. Information provided from DNRC and the Legislative Fiscal Division indicate state's portion of these costs will exceed $76 million.

Utilizing information from the above noted cost containment report; Montana and therefore DNRC faced a designated fire danger of "very high" to "extreme" for approximately two months of 2003.

Chapter II describes the "players" in wildland fire administration and how the state's wildland fire administration is funded.

Chapter II provides background information regarding organization of the fire protection agencies (federal, state, local) and private sector resources. We also discuss how wildland fire preparedness and suppression is funded and present detailed information on the fire cost factors. Our paraphrased conclusions are:

Conclusions:

- ***Effective cost containment strategies on large fires should concentrate on the cost factors: equipment, personnel, and aviation.***
- ***The best-cost containment strategy is to prevent a fire from getting large.***

Fire Administration is Being Improved

We also state in Chapter II, the report various aspects of wildland fire administration could be improved, but the 2003 fire season was unprecedented. The types, locations, and number of fires stressed operational and control systems. Additionally, DNRC, either on its own or through partnership with local and federal fire protection

agencies, has or is actively working to address many of the issues and deficiencies identified from the 2003 fire season.

Chapter III - Initial Attack of Wildland Fires

DNRC has responsibility for protecting over 52 million acres from wildland fire. To perform initial attack duties, DNRC utilizes a combination of federal, state, tribal, contracted, and local fire service organization resources. In this chapter we describe how these varying entities interact, how wildland fires are detected and resources dispatched. The following are paraphrased conclusions about initial attack operations.

Conclusions:

- ***DNRC has established procedures and provided resources for locating, reporting, and responding to wildland fires.***
- ***Resources are generally dispatched without delays when fires are located near boundaries between state, local, tribal, and federal protection areas. This results in more aggressive initial attack efforts.***
- ***State, federal, and local entities coordinate fire suppression activities during initial attack.***
- ***DNRC is meeting its goal to suppress 95 percent of fires at less than 10 acres and the department should continue its aggressive initial attack policy.***

Helicopters and extra resources acquired during severe fire conditions have enhanced initial attack capabilities

Over the past several years, DNRC's initial attack program has increased its capability with the addition of helicopters. The department deploys helicopters to the Northwestern (Kalispell), Southwestern (Missoula), and Central (Helena) Land Offices for the entire fire season and uses their other three helicopters to supplement those Land Office's needs and respond to fires in the eastern portion of the state as needed.

In addition to expanded aviation resources, DNRC has established a process to enhance initial attack capability and response when fire danger levels meet established criteria. When these fire danger levels are met or exceeded, DNRC fire personnel can formally request additional resources. The requests for these "severity resources" follow an

established approval process and typically consist asking for more aircraft, engines, and additional ground crews that come from the public and private sector. Severity resources are "pre-positioned" in areas with the highest risk for fire ignition and then used if fires start. In the past five years, approximately $8.3 million has been expended on severity resources. We developed a conclusion and recommendations regarding supplemental initial attack resources, they are paraphrased as follows.

Conclusion:

- ***Helicopters and severity resources supplement DNRC initial attack capabilities, but lead to increased costs. Controls are in place for monitoring utilization of these resources.***

Recommendations to DNRC:

- ***Coordinate with the Northern Rockies Coordinating Group to implement a two-tiered rate system for severity resources.***
- ***Make completion of the fire program analysis a high priority.***
- ***Seek support for additional funding from the legislature for the county cooperative program.***
- ***Seek legislation to establish a formal risk financing method for severity funding.***

Chapter III ends with discussion of the National Fire Plan and how federal funds distributed to local communities for fuel reduction programs are administered by DNRC. Presently no state funds are being specifically used to supplement the federal fuels mitigation program and no statewide fuels reduction plans exist. Our paraphrased conclusion is:

Conclusion:

- ***The state's fuels reduction efforts are not coordinated to ensure those areas with the greatest risk are treated. This is due to lack of statewide information on forest***

fuels and complete reliance on inconsistent federal funding streams to address fuels mitigation projects.

Chapter IV - Wildland Project Fires

In calendar year 2003 over 80 percent of all state fire suppression costs were attributable to 19 fires. Three of the fires (Cooney Ridge, Black Mountain, and Boles Meadow) accounted for 46 percent of the costs. This chapter explains the administrative aspects of suppressing project fires from the time a fire is turned over to an Incident Management Team (IMT) through return of the fire's management to the administrative entity. We also address legislative questions regarding fire suppression costs.

Our primary focus during review of project fires was to examine the types and use of business controls employed by the administering entities and IMTs. Audit testing identified several fire business controls that could be improved. The following are paraphrased conclusions and recommendations on several factors impacting fire costs.

Conclusions:

- ***Fire business practice controls are in place and the majority of these controls were adhered to during project fires in 2003. However, improvements can be made.***
- ***DNRC and other agencies involved in dispatch recognize and are addressing problems identified during 2003. While agencies have taken specific steps to improve the dispatch process, improvements are still needed.***
- ***Mandated limitations on hours and days worked exist for the safety of fire personnel, but contribute to increased fire costs and can create negative, but often-inaccurate public perceptions about personnel work activity.***
- ***Fires in wildland urban interfaces increase fire suppression costs.***

Recommendations to DNRC:

- ***Standardize first and last day of work payments to local fire departments.***

- ***Take steps to ensure on-site equipment inspections are performed on project fires.***
- ***Change the language in future equipment contracts to reflect damage claim clauses used in national engine and aviation contracts.***
- ***Work with federal and other partners to improve and expand Delegation of Authority language to provide more specific direction to Incident Management Teams.***
- ***Strengthen the cost share agreement development process by increasing training and support for Line Officers.***
- ***Aggressively implement use of Incident Business Advisors on project fires.***
- ***Take advantage of opportunities presented during close-out briefings to have more detailed discussion of a fire's administration.***
- ***Ensure Line Officers conduct detailed performance appraisals of Incident Management Teams and work with NRCG to incorporate appraisal information into the overall evaluation of the role of IMTs.***
- ***Work with the NRCG to establish meaningful performance measures for all personnel assigned to fire incidents, including contracted resources. Also, incorporate requirements for performance appraisals to be conducted by IMTs into each fire's Delegation of Authority.***

Chapter V - Post Fire Activities

Once a fire is over and also after the fire season winds down, there are many post-fire activities that take place related to project fires. They include review of suppression tactics, resource availability analysis, and coordination efforts. Other post-fire activities involve cost recovery efforts, contracting issues, and payment for fire cache items used during fires. The following paraphrases our conclusions and recommendations regarding DNRC post-fire activities.

Conclusion:

- ***DNRC fire personnel are active participants in the interagency arena and have the opportunity and responsibility to present and protect Montana's interest with regard to wildland fire administration.***

Recommendations to DNRC:

- ***Clarify policy outlining conditions on when it will pay for individuals and industry for assisting in suppression efforts on accidentally started fires.***
- ***Establish tighter controls over fire cache items by including more specific language in each fire's Delegation of Authority, requiring Line Officers to ensure fire cache controls are being followed, and modifying department policy regarding fire cache losses so it mirrors NRCG policy.***
- ***Continue its own efforts as well as work with the NRCG to solicit competitive proposals for wildland firefighting contracts.***
- ***Actively examine cost benefits of renting versus purchasing items for wildfire suppression, and along with NRCG, reexamine fire cache contents to determine whether changes are needed.***
- ***Immediately begin cross-training other department staff for FEMA cost recovery efforts and review of federal fire bills.***
- ***Employ formal retrospective cost studies to examine efficiency and effectiveness of wildland fire suppression efforts and provide results to fire managers.***
- ***Strengthen capabilities of Line Officers by providing training and additional resources for large project fires and when requested on other fires.***
- ***In cooperation with other fire protection agencies explore options to more consistently involve dispatch in discussing, evaluating, and documenting the role of dispatch in a fire's administration.***

Chapter VI - Aviation Resources

Aviation plays a significant role in both fire suppression and fire costs. Aircraft, whether large air tankers delivering fire retardant or helicopters conducting water drops, are one of the most visible symbols of the wildland firefighting effort. This chapter discusses DNRC's aviation resources and provides recommendations to enhance this resource's safety and effectiveness, especially with regard to initial attack.

Recommendations to DNRC:

- ***Request appropriations for sufficient personal services to provide for a continuous helitack capability for each helicopter assigned to land offices during the fire season.***
- ***Request sufficient personal services resources to safely and effectively operate all assigned aircraft and more accurately reflect actual pilot operating requirements.***
- ***Request sufficient personal services resources to properly staff its aviation maintenance program.***

Chapter VII - Wildland Fire Management

Due to our audit approach several important issues that did not directly relate to those items discussed in the previous chapters, or were too wide-ranging to be included in specific discussions needed to be addressed. These topics are presented in Chapter VII and we provide a variety of conclusions and recommendations to both DNRC and the Legislature.

Conclusions:

- ***The combined impact of the issues of training equivalencies, availability of training, and the timeframes associated with obtaining some firefighting credentials hampers the full utilization of some local resources.***
- ***Any strategies to enhance use of local firefighting forces in the suppression of wildland fires must address the conditions and issues impeding local forces from being a fully integrated partner in the wildland firefighting environment.***

Recommendations to DNRC:

- ***Establish formal agreements with local fire service organizations to clarify responsibilities and compensation for responding to DNRC fires occurring outside the statutorily designated fire season.***
- ***Present to the NRCG and Legislature a proposal for the formation, maintenance, and funding of additional Type 3 Incident Management Teams in Montana.***

Recommendation to the Legislature:

- ***Authorize a study to develop and update fire-related statutes to address current development and environmental***

conditions and improve wildland fire suppression management and mitigation.

Department Response To The Recommendations:

We provided DNRC with 26 recommendations to improve the administration of the suppression of wildland fires. The department's responses to these recommendations are included in the report appendices. Overall, the department concurred with all the recommendations and provided responses and implementation dates for each recommendation.